FEATURES OF THE ARCHITECTURAL APPEARANCE OF MODERN **MOSQUES IN CENTRAL ASIA**

Khusainov M.A¹., Poshshokhujaeva D.V²., Khusainov S.M³., Khusainova K.M⁴.

¹Ph.D. docent, Department of Construction of buildings and structures, Namangan Engineering Construction Institute, Uzbekistan, e-mail.: khusainov1962@gmail.com

²Assistant teacher, Department of forein language, Namangan Engineering Construction Institute, Uzbekistan 3 Master student, Department of Construction of buildings and structures, Namangan Engineering Construction Institute

³Student, Department of forein language, Namangan State University, Uzbekistan

ABSTRACT

The article discusses the issues of improving the architectural and planning solutions of mosques based on the trends of oriental architecture and the requirements for the religious rituals of Muslims. It is proposed to develop constructional normative documents regulating security during the functioning of mosques, as well as issues of sanitary and hygienic requirements in a dry-hot climate.

Key words: architectural appearance of mosques, minaret, doorway, shaping, religious ceremony, functional features of mosques, safety, sanitary and hygienic requirements.

INTRODUCTION

In Oriental architecture, especially in Central Asian architecture, the architectural appearance of mosques has long been regarded as a national honor, and such places were built to give people comfort and spiritual relief. Such a feeling can be seen in the buildings of nations worshipping other religions. For example, the churches of Catholics and Christians, Buddhist temples, and synagogues of the Jews were based on national architectural forms that were specific to the geographical area in which the people of those religions originally lived. It can be seen that every nation strived to make the temple of its religion a magnificent, perfect, graceful and beautiful community building [1], [2], [3].

In general, the Central Asian region in I-VIII centuries is characterized as the continuity of cultural and artistic traditions, at the same time its art and architecture had distinctive features that distinguished it from the primitive art of the ancient population and the developed art of the late Middle Ages. Therefore, in the era of feudalism, the architecture of the Islamic world (the Middle East, the northern part of the American continent, etc.) appears as a broad and complex sphere of mutual artistic culture of many peoples, but there are some differences in ideological and aesthetic views and styles, also some differences in forms are represented [4].

The construction of mosques in Central Asian countries begins with the spread of Islam and various types of religious architecture. The heyday of the construction of mosques occurred mainly in IX-XII centuries. The period of architecture of Central Asia IX-XII centuries, according to I.F. Borodina, is characterized as "...improvement of classic, construction and technical methods and new artistic qualities associated with radical social and ideological changes in the country" [5].

The subsequent development of the architectural and planning appearance of the mosque consists of highlighting the central nave (an elongated room, part of the interior) along the Qibla axis (direction towards the sacred Kaaba in the city of Mecca), the appearance of a dome near the mikhrabin it, from XIV century, along with the minarets, becomes dominant in the silhouette of the building and highlighting the entrance doorway [6].

With the development of construction technology, a new look of the buildings of the mosque and its auxiliary elements was gradually formed. This was especially in buildings and mosques with vaulted galleries, a domed hall and an arched entrance doorway. The revolving gallery consists of an arched cover over the columns, which corresponds to a square grid in the plan [4, 243-251p.]. An Arabianscholar Y. Zaki declares the

Volume 3, Issue XII, December 2020 | 267

column, arch and dome as an inevitable "trinity" of Islamic architecture.

The architecture of mosques and cultural centers in the middle of XVII century lags far behind the geometry of the Timurid period of construction techniques, doorways, domes, minarets and forms of artistic decoration. This is due to the feudal strife and increasing economic ruin which are resulted by wars of Bukhara, Kokand and Khiva khanates. A noticeable rise in the cultural life of the Uzbek khanates was in the 20-30s of XIX century, only after the establishment of trade and cultural relations with Russia.

After 1917, from the beginning of Soviet power in Uzbekistan, communist ideology prevailed and mosques lost their dominant ideological, political and religious leadership. Nevertheless, they continued to retain the overall importance of public centers, but of a new type, became a place for cultural and educational work among the population, sometimes mosques were used as communal dwellings, warehouses and for other purposes [7].

After the declaration of independence in 1991, representatives of all religions living in Uzbekistan were allowed to build their own places of worship or to reconstruct their existing ones. During the totalitarian regime, the restoration of the rights of citizens to freedom of conscience, which had been accumulated, led the nation to hasten the construction of mosques. In many makhallas (neighborhood, residential quarter) of our Republic thousands of mosques had been built and reconstructed. But everyone built as they knew how to do it. The architectural composition of many mosques did not have a single significance and appropriateness with each other. The mosques of makhallas were built in accordance with the shape and level of the land area, which was allocated (found) from the internal resources. In many cases, no attention was paid to the architectural expressiveness of the mosque. As a result, mosques that did not have a single appearance but had different levels of convenience had been erected. It was possible to imagine that from the point of the mosque-architectural composition had become a religious structure that one could freely and boldly apply any various district design ideas [8].

At the same time, it should be noted that in some of our major cities there are many mosques of modern, architectural composition, that have all the amenities and built on a volumetric-planned scale.

From the above considerations, it is natural to study the practice of building modern mosques and determine the architectural features of their specific characteristic.

First and foremost, mosques, like any other community building, need to be sturdy and secure. Secondly, it must be functionally adapted to perform the acts of worship prescribed by the Islamic creed. Thirdly, it should be architecturally elegant and one of the most beautiful buildings in a city. Every visitor (tourist) that visits any city should have a building that impresses on the level of a monument which can widely glorify our attitude to our sacred religion, our religious culture.

Let's look at the current situation from the point of view of these three aspects and make our own observations:

- it is necessary to clarify the details of the appearance (silhouette) of mosques and come to a definite conclusion. In this case, of course, there must be a doorway. A high doorway that is situated in the center of any building produces greatness to each facade. As for a minaret, some mosques have a minaret and some do not. In our view, there must be a minaret. According to some experts, the minaret is a medieval element for announcing the time of prayer (for calling the call to prayer), although in modern technology there are loudspeakers of different power, which can be hung at a higher place. In addition, in today's modern life every person has watches, which clarify the time so they claim that it is not necessary to have a minaret.

However, the minaret is a sign of instantaneous difference between a building of worship belonging to Islam and other buildings. In addition, the minaret is a vertical element facing the sky, it is a symbol of "love for the Creator" because the human body corresponds to the axis of symmetry. According to M. Merlo Pontius, vertical is a symmetrical axis of the symmetry of the body, just as it is a system of symmetry [9].

When we look up to the minarets of medieval mosques, we get the impression that our "souls are ascending to the heaven" and our spiritual energy is opening a way to the heaven. Also, the minaret is considered as the main dominant accent in the cityscape.

- the mosque buildings have a spatial volume spread along the horizon. The direction of the minaret is opposite to the horizontal direction. The next task is to find accordance between these two opposites. In our opinion, a successful solution to this problem can be found on the basis of architectural laws. This is the "golden

ratio" law composition.

According to Dr. Bulatov, a well-known scientist and architect, the geometric methods of building architectural forms which are used by the great medieval architects of Central Asia can be mechanically applied to modern architectural practice, but different socio-economic conditions of different periods and societies require different architecture.

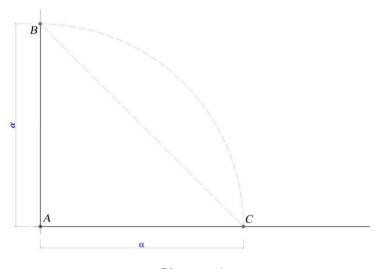
A man of a new era thinks in a new way, mastering new and new areas of science, technology, culture and art. The progress is enormous, but a special characteristic in human activity is that a person increasingly uses mathematics as a tool of thinking [10], [11].

Also, a large number of geometric constructions are set forth in the "Book of what a craftsman needs from geometric representations" by Abul Wafa al-Buzjani (940-998) and "Book of artful spiritual techniques and natural secrets about the intricacies of geometric figures" by Abu Nasyr al-Farabi (873-950).

Farabi considers the three dimensions — height, width, and depth — as a characteristic feature and the sign of materiality. Scientific works of Abul Wafa al-Buzjani play an important role in the further development of mathematics and graphics. His works are based on the theoretical foundations of drawing, and his so-called work which contains 13 chapters begins with the chapters of "A ruler", "About dividers and a triangle". It provides extensive information about manufacturing these tools and using them. The content of this work is mainly devoted to geometric constructions and the essence of the proportions of geometric shapes [12].

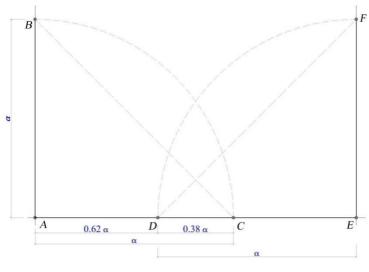
It is well known that the concept of "golden ratio" or "golden proportion" [13] is based on the number 1, which is divine. If we add 1 to 1, we get 2. Then, if we add up the last two numbers which we got, the next terms of the "golden ratio" are obtained. That is 1+2=3; 2+3=5; 3+5=8; 5+8=13; 8+13=21; 13+21=34 ... and so on. The ratio of participants to the result is approximately 0.38+0.62=1 [14], that is: $13/34\approx0.38$ and $21/34\approx0.62$; $8/21\approx0.38$ and $13/21\approx0.62$; $5/13\approx0.38$ and $8/13\approx0.62$. Regardless of the size of the mosque to be built, this law ensures the proportionality of the elements of the building. We will do this in a few steps:

- the first step: in a straight line of the vertical direction we mark the section AB of any length (minaret height) and move its length to the horizontal line (point C) passing through point A and create the section AC (picture 1);



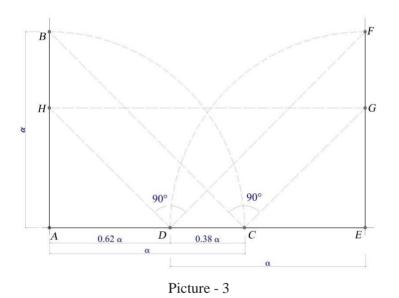
Picture – 1

- the second step: divide the section AC by 0.62 and 0.38 into two parts and get a point D. Then we obtain the section DE from the point D in the horizontal direction, defining the point E which is equal to AB according to its length. Afterwards, it should be drawn a vertical line through the point E and we obtain an EF section, which is equal to the DE section according to its length. As a result, we have AD = AC = DE = EF intersections (picture 2);

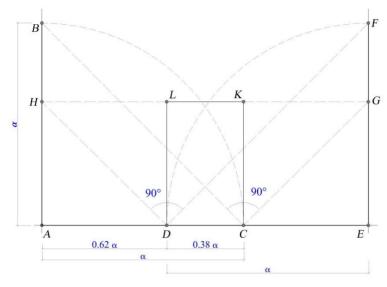


Picture - 2

- the third step: we draw a line perpendicular to the straight line BC from the point C and mark the point G at the point of intersection with the section EF, and draw a horizontal line passing through this point and mark the point H intersecting it with the section AB. Conversely, even if we draw a line perpendicular to the straight line FD from point D, the point of intersection with the section AB coincides exactly with point H. The resulting straight line GH gives us the height of the mosque doorway, which is equal to 0.62AB or AD (picture 3). If we look at the points B-C-G-H-D-F in turn, we can see the majesty of the amazing geometric identity.

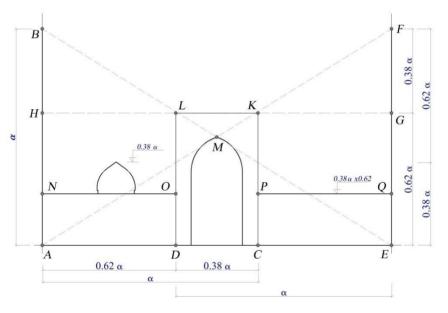


- fourth step: draw a vertical line from points D and C and mark the points L and K, which has intersection with the straight line GH. These four points mark the boundaries of doorway of the mosque (picture 4);



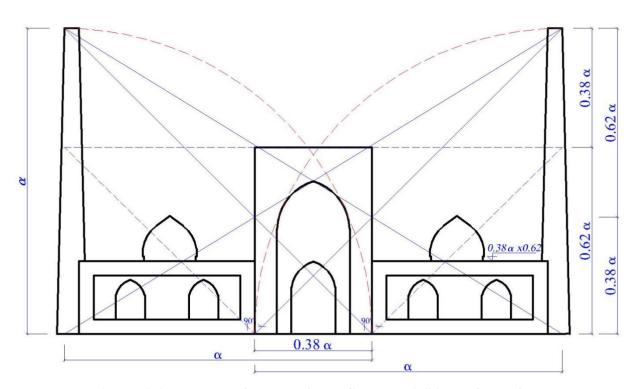
Picture - 4

- fifth step: connect the points AF and BE with a line and mark the point of intersection of these lines — "the center of the architectural ensemble" M. This point is the center of the doorway arch and its highest point. Next, we determine the height of the khanaqakhs, which are located between the minarets on both sides and the doorway. Its height is equal to 0,62 to the width of the doorway. The height of the dome is equal to 0,38 to the width of the doorway (picture 5);



Picture - 5

The basic module is equal to 1 in the dimensions of the proposed mosque project. The dimensions of the main elements of the building are only proportional to the height of the minaret - α (picture 6).



Picture 6. An example of the use of the "Golden ratio" in the form of a mosque

Now let's look at the functional aspects of the mosque: in addition to being a place of worship, the mosque also performs other functions such as reading marriage, advising citizens on fiqkh issues, resolving various religious issues, studying science, internal administration and housekeeping. This means that there must be specially equipped particular rooms for each task. These may include: imam-khatib room, muezzin, marriage reading, accountant rooms, library, reception of citizens, economic affairs room and so on.

The architectural and design solution of the main building of the mosque - the prayer hall should be aimed primarily at facilitating the entry and exit of citizens, the rapid movement in emergencies and ensuring the standards of sanitarian hygiene.

In the literature of architecture, the requirements for the design of public buildings are mainly those such as auditoriums, theaters, cinemas, sports complexes. For example, in the design of the theater, the height of the building should be based on the air capacity (5 m³ per spectator) [15] and the amount of air should be renewed not less than 20 m³ for per person [16] per hour, passageways (corridor)at the expense of 1 meter for 80 people but not less than 3 meters. One parking space for three spectators, 1/6 of the spectators in the theatre lobby at the expense of 0,8 to 2 m² per visitor, and many other parameters should be designed according to the established norms.

The theatre can be shown approximately 1-2 times a day during the seasonal period, and in the mosque prays are performed five times a day. The intensity of people entering the mosque is hundreds of times higher than in the theater. The theater building is available only in the centers of regions while the mosque buildings are available in all cities, villages and streets. Mosque buildings are the most frequently constructed building as a public building, we consider that it is necessary to study the requirements for it in detail and develop constructional standards.

Since the acts of worship performed in mosques are mainly physical, it is natural that the requirement for intensive ventilation of the building is greater than in other community buildings. This leads to the need to set standards for the ventilation of the mosque's building, where the act of worship is performed. Secondly, unlike other religions, one should enter the prayer hall of Islam without shoes. Hundreds of shoes are piled up in front of many local mosques due to the fact that the entrance to the prayer building is available through 1-2 doors.

After praying, there might be congestion at the door while finding and wearing shoes. This condition can interfere with movement in emergency. In order to eliminate this situation, it is necessary to envisage a Volume 3, Issue XII, December 2020 | 272

corridor with a width of at least 3 meters on three sides besides the Qibla and 1-2 doors with a width of at least 2 meters on each side, and a digital shelf for shoes in front of each "row". This procedure ensures rapid and orderly evacuation even in emergencies.

In conclusion, it should be noted that at the current stage of economic reforms in Uzbekistan, the focus is on the development of tourism. The conditions created for the worship of Muslim tourists visiting our country include the construction of tourism infrastructure.

If proposed "golden ratio" mosques which are similar to the appearance of mosques are builtin the area of 75 - 100 meters from the main road in the direction of tourist routes and the main style (facade)in front of the alley, fountain and other architectural elements are placed, two-sided parking lots are designed it would demonstrate the example of national architecture and Uzbek people's respect for their religion.

References:

- 1. Voronina V.L. ArxitekturniyepamyatnikiSredneyAzii. Buxara, Samarkand.-L.,1969. 37s.,il.
- 2. Voronina V.L. KolonniSobornoymecheti v Xive // AN. M. 1969. № 11
- 3. Voronina V.L. Konstruksiiixudojestvenniyobraz v arxitektureVostoka.–M., 1997.
- 4. Voronina V.L. Islam iarxitektura (naprimereSredneyAzii) // Arxitekturnoyenaslediye. Vip.32 M.: Stroyizdat, 1984. S. 157 163.
- 5. Borodina, I. F. Dekorativniyeoblisovkikak element tektonikiarxitekturiSredneyAzii IX − XX vv. [Tekst] / I. F. Borodina // AN, 1986. M., vip. №34. S.87.
- 6. Xaitova S.R. Arxitekturaistroitelstvomechetey v stranaxsentralnoyazii //Politexnicheskiyvestnik. SeriyaInjenerniyeissledovaniya. TTU im.akad. M.C.Osimi. №4 (40) 2017. s. 211-217.
- 7. Axmedov M, Q. PlanirovochnayastrukturadrevnegoSamarkanda. O rolimecheteyiformirovaniisiluetagoroda // Sb. Po istoriiiteoriiarxitekturi.. Samarkand, 1979. S. 60-66.
- 8. Xusainov M.A., Eshonjonov J.B., Mumonov K. Hozirgizamonmasjidlarininghajmiy-rejaviyyechimlarixususida. //VestnikNaukiiTvorchestva: MaterialiMejdunarodnixmeropriyatiyObshestvaNaukiiTvorchestva (g.Kazan) za iyun 2018 goda / Pod obsh. red. S.B. Kuzmina. S. 64-69.
- 9. Merlo-Ponti.M. Fenomenologiyavospriyatiya. SPb.: "Yuventa", 1999. S.320
- 10. Bulatov M.S. Iskusniyegeometricheskiyepriyomi v zodchestveSamarkandakonsa XIV-nachala XV vv. // IskusstvozodchixUzbekistana. Vip. 4. Tashkent, 1959.
- 11. Bulatov M.S. Geometricheskayagarmonizasiya v arxitektureSredneyAzii IX XV vv. M., 1988.
- 12. Abdurahmonov Sh. Chizmalaryaratishdaqo'llanadiganhandasailmi. Monografiya. –T.: "Fan vatexnologiya", 2017-S.16
- 13. Vasyutinskiy N.A. Zolotayaproporsiya. M.: "Molodayagvardiya", 1990. -238s.
- 14. VorobyovN.N.ChisloFibonachchi, M:, "Nauka", 1978.-144s.
- 15. Gelfold A.L. Arxitekturnoyeproyektirovaniyeobshestvennixzdaniyisoorujeniy: Ucheb, posobiye. M.: "Arxitektura-S", 2006.-280 s.
- 16. SHNQ 2.08.02-09* "Jamoatbinolarivainshootlari"